

What is claimed is;

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1. A monochromatic image display system comprising a display device which can express each picture element of a monochromatic image by a series of cells each of which can express tones in multiple levels, and a cell signal generating means which generates, on the basis of a monochromatic image signal determining the output luminance of a monochromatic image, a cell signal for each cell which determines the output tone level of the cell so that average of the output luminances of all the cells for each picture element corresponds to an output luminance of the picture element.

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2. A monochromatic image display system as defined in Claim 1 in which the cell signal generating means generates cell signals so that the output luminances of the cells are substantially uniform.

3. A monochromatic image display system as defined in Claim 1 in which the cell signal generating means generates cell signals so that the output luminances of the cells change at an inclination according to a tone gradient vector of picture elements around the picture element corresponding to the cells.

4. A monochromatic image display system as defined in Claim 1 in which the cell signal generating means intensity-modulates the input signal levels to the respective cells independently of each other.

5. A monochromatic image display system as defined  
in Claim 1 in which the cell signal generating means time-  
modulates the input signal levels to the respective cells  
independently of each other.

5 6. A monochromatic image display system as defined  
in Claim 5 in which the cell signal generating means time-  
modulates the input signal levels to the respective cells  
by frame.

10 7. A monochromatic image display system as defined  
in Claim 6 in which the cell signal generating means  
determines the output tone level of each cell so that the  
output luminances of frames are substantially uniform.

15 8. A monochromatic image display system as defined  
in Claim 6 in which the maximum number of tones which can  
be expressed by each cell per one frame is not smaller than  
64 (6 bits).

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D3* 9. A monochromatic image display system as defined  
in Claim 1 further comprising a tone number conversion  
means which carries out a tone number conversion processing  
20 on an input original monochromatic image signal, thereby  
generating said monochromatic image signal.

25 10. A monochromatic image display system as  
defined in Claim 9 in which the number of tones represented  
by the original monochromatic image signal is not smaller  
than 256 (8 bits).

11. A monochromatic image display system as

defined in Claim 1 in which the display device expresses each picture element by three cells.

12. A monochromatic image display system as defined in Claim 1 in which the display device is a liquid 5 crystal panel.

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13. A ~~monochromatic image display system~~ comprising a display device which can express each picture element of a monochromatic image by a series of cells each 10 of which can express tones in multiple levels and at least two of which have maximum out levels different from each other, and

a drive means which drives the cells so that the output level difference per one level differs from each 15 other between said at least two cells.

14. A monochromatic image display system as defined in Claim 13 in which the maximum output level of one of said at least two cells is substantially the same as the output level difference per one level of the other 20 cell.

15. A monochromatic image display system as defined in Claim 14 in which the drive means drives the cells so that said at least two cells express tones in substantially the same number of levels.

25 16. A monochromatic image display system as defined in Claim 13 in which the display device is a liquid

0 crystal panel provided with monochromatic filters which are different in transmittance and respectively formed on said at least two cells for each picture element so that the maximum output levels of said at least two cells become  
5 different from each other.

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17. A ~~monochromatic image display system as~~ defined in Claim 13 in which the ~~display~~ device is an organic EL panel in which said at least two cells for each picture element emit light in the same ~~color~~ at different 10 luminances for a given signal level.

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18. A ~~flat panel image display system using a flat~~ panel-like display device characterized in that the ~~display~~ device is a monochromatic display device which makes a display in a color which falls within the region surrounded 15 by points  $(0.174, 0)$ ,  $(0.4, 0.4)$  and  $(\alpha, 0.4)$  as represented by co-ordinates  $(x, y)$  on a CIE chromaticity diagram, wherein  $\alpha$  represents the x-coordinate of the intersection of a spectrum locus and a straight line  $y=0.4$ .

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19. A ~~flat panel image display system as defined~~ in Claim 18 in which the display device is a display device which is provided with at least one of elements including a substrate, a face plate, a diffuser panel, a color filter, a diffuser film, a collimator film, a prism film and a polarizing film which are colored to a predetermined color.

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20. A ~~flat panel image display system as defined~~ in Claim 18 in which

~~the display device comprises a plurality of cells and can express each picture element of a monochromatic image by a series of cells, and~~

5 ~~there is provided at least one of an area modulation means which controls the output luminance of each picture element by selectively turns on and off input signals to the respective cells for the picture element independently of each other, a time modulation means which drives the respective cells for each picture element in a time division system, and an intensity modulation means which controls input signal levels to the respective cells for each picture element independently of each other, wherein the cells are driven so that the maximum luminance of each picture element is in the range of  $100\text{cd}/\text{m}^2$  to~~

10  ~~$10000\text{cd}/\text{m}^2$ .~~

15  ~~$10000\text{cd}/\text{m}^2$ .~~

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21. ~~A flat panel image display system as defined in Claim 20 in which the maximum luminance of each picture element is in the range of  $500\text{cd}/\text{m}^2$  to  $5000\text{cd}/\text{m}^2$ .~~

20 22. A flat panel image display system as defined in Claim 18 in which the display device is a liquid crystal panel.

23. A flat panel image display system as defined in Claim 18 in which the display device is an organic EL panel.

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